

Review of Industries and Government Agencies for D&D-Applicable Technologies

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Project Objective

- Identify technology innovations in the private and public sector that may apply to D&D needs.
- Identify and track innovation in the most dynamic industry sectors.

Work Plan

- Assess needs
- Assess existing technologies
- Select industry and government agencies
- Review industry and government agencies for technologies

Deactivation & Decommissioning Information System (DDIS)

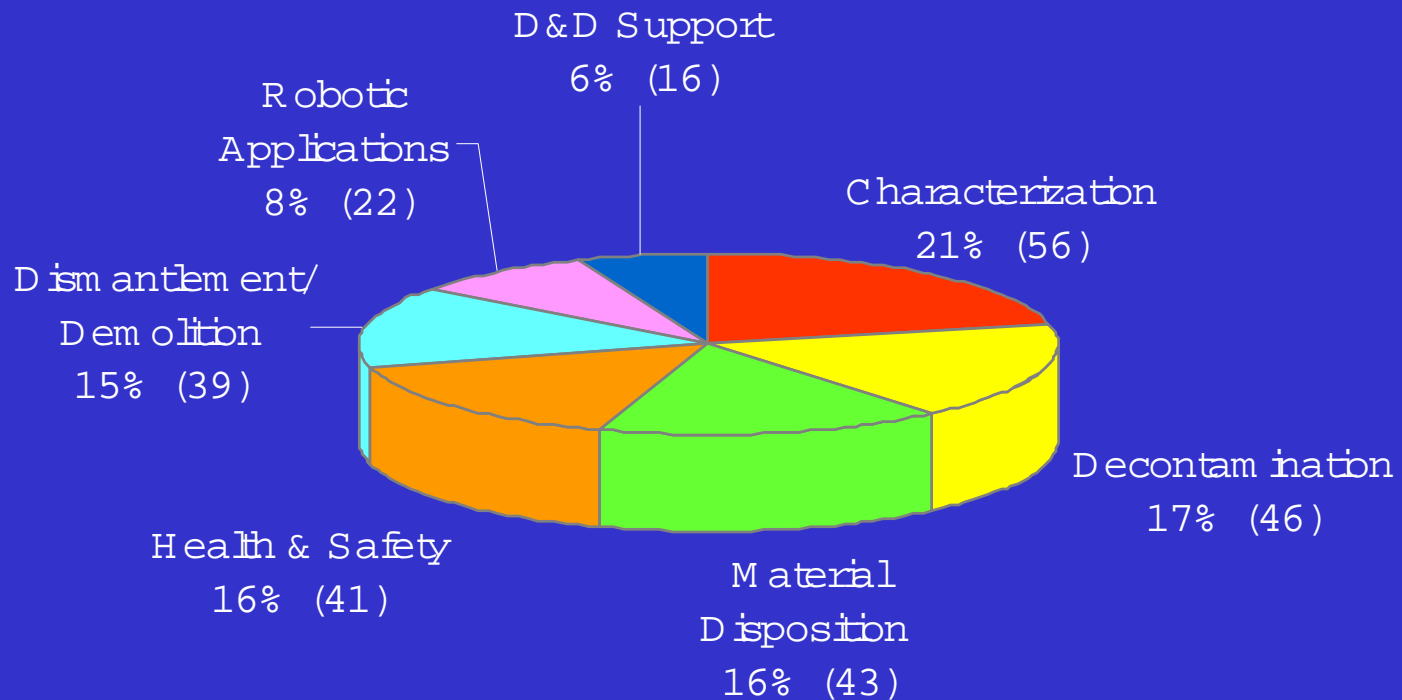
(data from FY01)

- 190 D&D needs
- 375 technologies (OST and non-OST supported)
- Coding system allows needs to be mapped to potential technical solutions

Needs Assessment

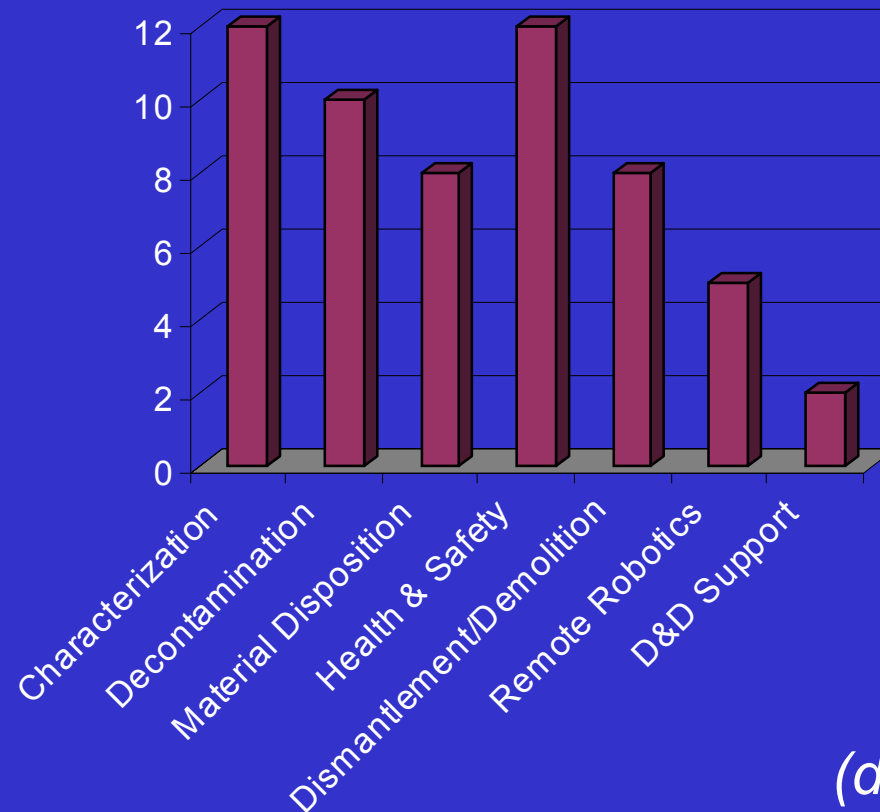
- Categorized needs by:
 - Problem area, media, and contamination remediation objective
 - Site and problem area
- Sorted needs according to:
 - National priority
 - Requirement for remote capability

D&D Needs According to Problem Area



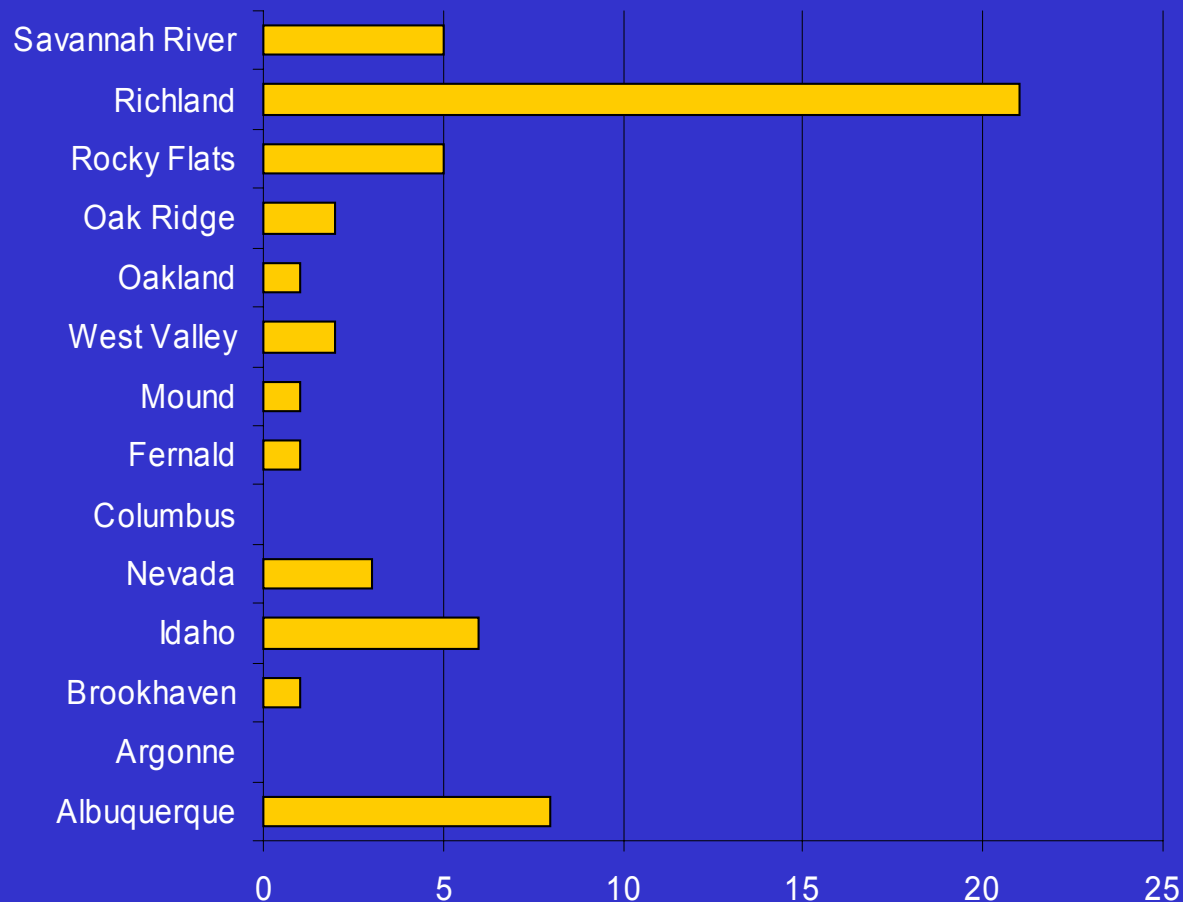
(data from FY 01)

High-Priority Needs According to D & D Problem Area



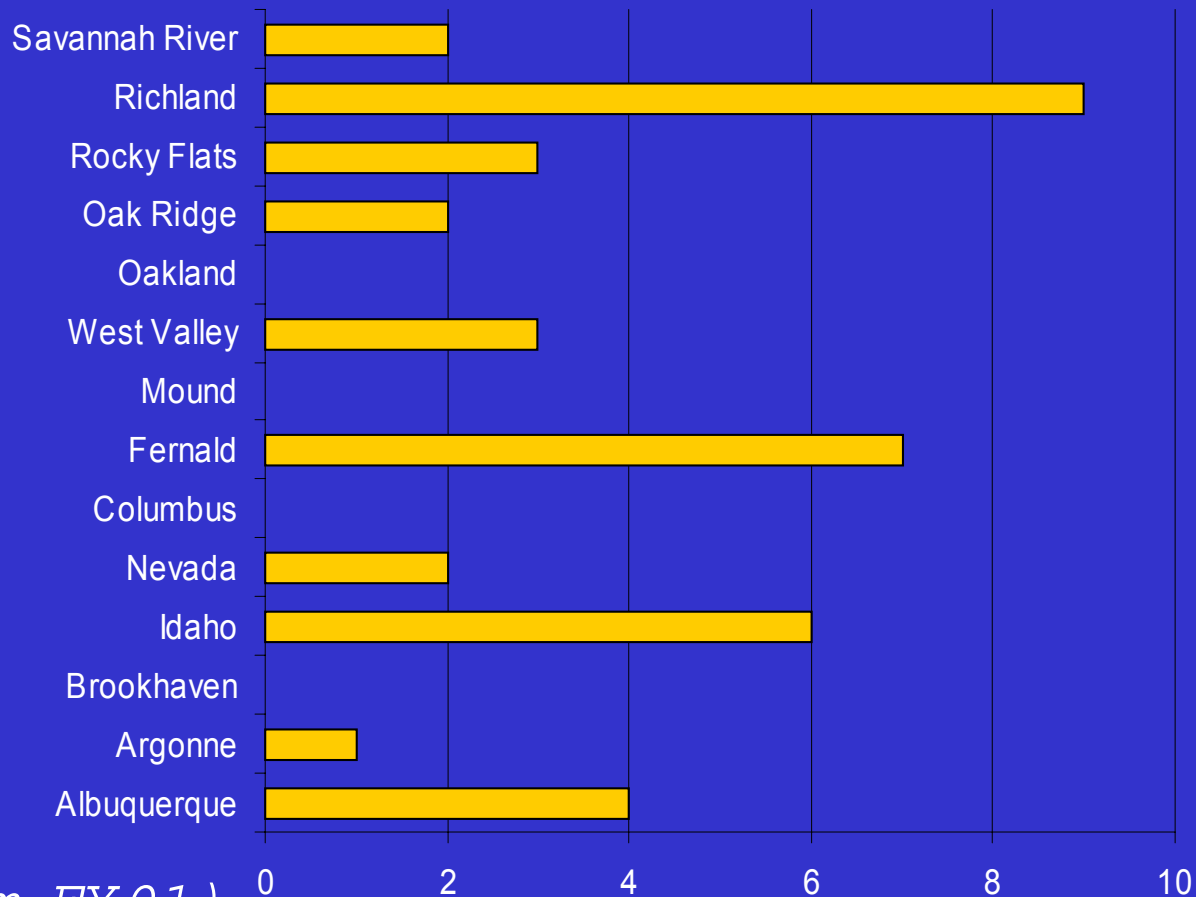
(data from FY01)

Site Needs for Characterization



(data from FY 01)

Site Needs for Disassembly/Decontamination



(data from FY 01)

Technology Assessment

- 34 D&D needs have no identified technical solutions.

Problem Area	Needs with No Solution	% of Total for Problem Area
Health & Safety	10	24
D&D Support	5	23
Robotic Applications	4	18
Decontamination	8	17
Material Disposal	5	12
Disassembly/Demolition	4	10
Characterization	2	3

Technology Focus

Characterization

- Characterization of radionuclide-contaminated media
- Characterization technologies with remote capabilities

Decontamination

- Decontamination of coatings/surface contaminants and fixed contaminants
- Decontamination technologies with remote capabilities
- Recycling of metal debris

Technology Focus

Health & Safety

- Dust/particulate control for worker safety
- Work area contamination monitoring

Disassembly/Demolition

- Mechanical and thermal cutting technologies for size reduction of varying materials
- Size reduction technologies with remote capabilities

Robotic Applications

- Robotic equipment including arms/manipulators and vehicles/crawlers

Industry Selection

- Industries that appear innovative in technology development
- Industries that may have ready-to-deploy technologies

Industry Selection

- Adhesives and sealants/paints and coatings
- Construction
- Diving
- Manufacturing
- Petrochemical
- Mining
- Oil and gas exploration
- Plumbing and sanitary services
- Radiological detection and monitoring
- Shipbuilding, shipbreaking, and repair

Government Agency Selection

- Army Corps of Engineers
- CIA, NSA, DOD
- USDA and National Forest Service
- Department of Transportation
- Department of Commerce
- Department of Energy
- Environmental Protection Agency
- Federal Laboratory Consortium for Technology Transfer
- National Aeronautics and Space Administration
- National Oceanic and Atmospheric Administration

Technology Search

Search included review of on-line resources:

- Trade journals
- Professional associations and organizations
- Conference literature
- Technology vendors
- Federal laboratories
- Government agency Web sites
- Technology transfer centers
- DDFA vendor links

Results

- 59 technologies recommended for further review .
- Several commercially available technologies identified as candidates for immediate demonstration and possible deployment.
- New technologies added to DDIS for use in needs response .

Conclusions

- DDFA is fulfilling its mission to promote and use the latest technological innovations to attain site closure.
- Many technologies considered state-of-the-art in non-D&D industry do not offer improvements over D&D technologies currently available at sites.
- Industries and agencies to follow for technology advancement include mining, construction, shipbuilding and repair, U.S. Navy, Army Corps of Engineers, NASA, and EPA.

Reference

The final paper, entitled *Review of Industries and Government Agencies for Technologies Applicable to Deactivation and Decommissioning of Nuclear Weapons Facilities*, is available on the NETL Web site at <http://www.netldoe.gov/>.

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